PROJECT
OSCAR

ORBITAL SATELLITE CARRYING AMATEUR RADIO

Project Oscar

A NEW EXPERIMENT IN AMATEUR COMMUNICATIONS. . . . WHICH, FOR THE FIRST TIME, WILL ALLOW CITIZENS OF MANY COUNTRIES TO TAKE PART IN A VENTURE INTO SPACE.

Oscar means: Orbital Satellite Carrying Amateur Radio

Why Satellites?

Many satellites are now in orbit around the earth. Men from several countries have communicated with these satellites, i.e., have commanded their orbit paths, have received valuable data from them concerning the nature of space – its temperature, its radiation levels, its effect on bio-organisms – and countless other valuable information.

This information is still but a drop in the vast bucket of spatial knowledge that man must fill before he can be reasonably sure of the true nature of the universe surrounding him.

Amateur radio is capable of fulfilling an important role in this great adventure. The tool will be a space satellite, radiating its data in an international amateur band. Radio amateurs will employ OSCAR to further the national fund of knowledge concerning space and space propagation.

Oscar Aids Research

Scientists must continue to propound, and engineers implement, a continuing series of outer-space experiments in this search for knowledge.

IN A MODEST WAY, PROJECT OSCAR PROPOSES TO ASSIST THESE SCIENTISTS AND ENGINEERS IN GATHERING ADDITIONAL DATA WHICH WILL CONTRIBUTE TO THEIR QUEST.

Radio amateurs throughout the countries of the world will participate in the OSCAR Project.

Numbering over 300,000, these skilled radio experimenters can constitute the most extensive listening, tracking, data-handling, and communications network that could ever be assembled. A program of self-education, in conjunction with Project OSCAR, will introduce radio amateurs to experimental space communications. This vast body of observers will provide mass data that is unavailable by present facilities.

The history of communications is well marked with the significant improvements effected by this group, basically because they are scientific-minded, curious, and are not limited to research projects that have to "payoff" or be discarded!

The Radio Amateur

The radio amateur is a citizen who has been licensed by his government to operate his own experimental radio station, without profit, and in the public good. In order to qualify for this license privilege, he must demonstrate electronic knowledge. He must abide by rules covering use of frequencies, quality and mode of radiation, radiated power, and the like.

Radio amateurs have been licensed, by their individual governments, in more than 200 countries, throughout the globe.

Amateur radio cuts across national boundaries. Through international radio communication among radio amateurs, the cause of international goodwill has well been served many times.

OSCAR LIKEWISE WILL CUT ACROSS NATIONAL BOUNDARIES. BUT IT WILL DO MORE. IT WILL DEMONSTRATE TO THE WORLD – BY WAY OF THE RADIO AMATEURS OF THE WORLD – THAT THE UNITED STATES IS WORKING TOWARD THE PEACEFUL USE OF SPACE. Substantial benefits will accrue to the United States if an effective effort such as Project OSCAR were properly exploited and publicized.

Amateur Radio Services

Project OSCAR will enable amateur radio to reach new heights of electronic competence, operating effectiveness, and public service.

In the past, ''ham'' radio has logged a commendable record of technical achievement, and community and national service.

- During national emergencies including, of course, war, the amateurs ranks have provided this nation with a vast pool of skilled operators, technicians, scientists, and electronics design/maintenance personnel.
- When flood, fire, earthquake and other disasters have wiped out commercial communications, the radio amateur – with his own equipment and on his own time – has provided essential communications facilities. On occasions, he has been the only link between disaster and the outside world.
- The amateur numbers professional scientists and technicians in his ranks who experiment in their spare time with projects in their technical fields. The unsubsidized independent radio amateur is capable of making a solid contribution to research. He can answer questions the professionals would get around to, if they weren't busy elsewhere!

Amateur Technical Contributions

Technical designs and improvements, evolved by radio amateurs following their avocation into "useless" areas of the radio frequency spectrum left over from commercial applications, include the following:

- Mass cooperation of the amateur body in government projects such as propagation studies: Each participating station is in reality a separate field laboratory. Cooperation of the American Radio Amateur in IGY (International Geophysical Year) activities is well known.
- Pioneering in the use and understanding of new frequencies in the crowded radio spectrum. The radio amateur has led in this field for over 40 years.
  * – Investigation and use of ionospheric skip communication (1923 – 1927).
  * – Investigation and use of "beyond horizon" VHF communication (1936 – 1940).
  * – Investigation and use of ionospheric and tropospheric "scatter" communication (1946 – 1950).
  * – Investigation and use of "long path" high frequency communication (1948 – 1955).
  * – Investigation and use of VHF moon-bounce and satellite ionization communication (1959 – 1960).
- Single sideband radiotelephony, now finding wide use in all services, was brought to operational supremacy for civil and military radio communication by the amateur. Likewise, numerous developments in the field of radio: beam antennas, "single signal" receivers, bandswitching, transmitters, and high frequency vacuum tubes were tried and proven on a practical basis by the radio amateur.

The Radio Amateur in Space

In the field of space communications, the radio amateur has already demonstrated capability.

- From the date of the first satellite launching, satellite signals have been and are being received, recorded, and analyzed by many amateur stations.
- Radio amateurs have succeeded in bouncing VHF signals off the moon to achieve transcontinental communication.
- Radio amateurs have communicated on high frequencies via ionized satellite trails.
- Radio Astronomy has become one of the most important tools for space research largely through the pioneering and continued efforts of internationally known radio amateurs who are also amateur astronomers.

Oscar Is Born

What will be the cost of placing an Orbiting Satellite Carrying Amateur Radio into Space?

> VERY LITTLE IF A SMALL RADIO TRANSMITTER OPERATING ON AMATEUR FREQUENCIES COULD BE TUCKED ABOARD A VEHICLE BOUND FOR SPACE!

This unique idea was the birth of the Project OSCAR Association.

OSCAR was born inadvertently by publication in 1959 of a radio "ham" article by Don Stoner, licensee of amateur station W6TNS. Stoner suggested that hams could build their own satellite "if someone only had a vehicle" to get it into space. He, along with F. H. Hicks, W6EJU, and other radio amateurs nursed the idea along and formed the Project OSCAR Association. Interest in the idea quickly spread among local radio clubs and very soon attracted nation-wide attention among radio amateurs.

Oscar Is Christened

On October 18, 1960, the Articles of Association for Project OSCAR were formalized in Santa Clara County, California.

The objects and purposes of Project OSCAR are:

- To inaugurate radio amateur space communication.
- To design and provide radio amateur satellite equipment and assist in its integration with space vehicles.
- To compile and publish information which will encourage maximum use of such equipment.
- To receive, digest, and study data accumulated as a result of OSCAR launchings, and to provide this data in usable form to assist the National space effort.
- To embark upon a self-training program to introduce the radio amateur to the new field of space experimentation and communications.
- To lead in ''state of the art'' development of future OSCAR experiments.

OSCAR IS AN AMATEUR RADIO PROJECT, NON-COMMERCIAL AND NON-MILITARY IN NATURE.

Oscar Implementation

The nature and magnitude of Project OSCAR requires that it be coordinated with a number of agencies. The Project OSCAR Association, composed at present of more than 200 amateurs, is the nominal activating and directing organization for the project.

One very important agency is the American Radio Relay League, Inc. (ARRL), a non-commercial association of radio amateurs recognized as the national spokesman for American radio amateurs. Recognizing the worth of Project OSCAR, the ARRL offers its facilities and capabilities to do the following:

- Sponsor, support and represent OSCAR in its relations with various publics – especially with government agencies, and quasi-official groups.
- Provide official sanction in the name of American radio amateurs to encourage general participation in the OSCAR program with particular regard to news dissemination, communications, and data flow from the OSCAR satellites.

The Oscar Experiments

The first experiment consists of placing a simple beacon transmitter into orbit. Transmission will be in the internationally assigned two-meter band (144-146 megacycles).

THE TRANSMITTER PACKAGE WOULD "HITCH-HIKE" INTO ORBIT ON A SPACE VEHICLE. THERE IT WOULD DEPART FROM THE ORBITING SATELLITE, BECOMING A SEPARATE, FREE-ORBITING AMATEUR RADIO SPACE STATION.

The primary purpose of this beacon is to inaugurate active participation of radio amateurs throughout the world in the development of experimental space propagation and to stimulate and expand the amateur's capability to contribute to future space programs.

Further experiments will include the developing of two-way amateur radio experiments via space satellites. These tests will be conducted by placing additional specifically appropriate stations into orbit in the same manner, from time to time.

The OSCAR program NEEDS AND WELCOMES the participation of all interested amateurs, established radio clubs as well as amateur organizations in other fields such as astronomy, flying clubs, optics, and so on.

Substantial Benefits to the Nation

The OSCAR program is in the nature of radio amateur experimentation, and is a logical extension of current radio amateur processes involving electromagnetic experiments and random communications.

- The Nation will benefit as amateur radio offers a vast potential for scientific experimentation.
- The radio amateur will benefit through his new knowledge and increased proficiency in his art.
- The sciences will gain an enthusiastic new public.
- Finding a place for the radio amateur in various research projects will make him a member of the scientific team – thereby providing something that every team should have – strength on the bench!

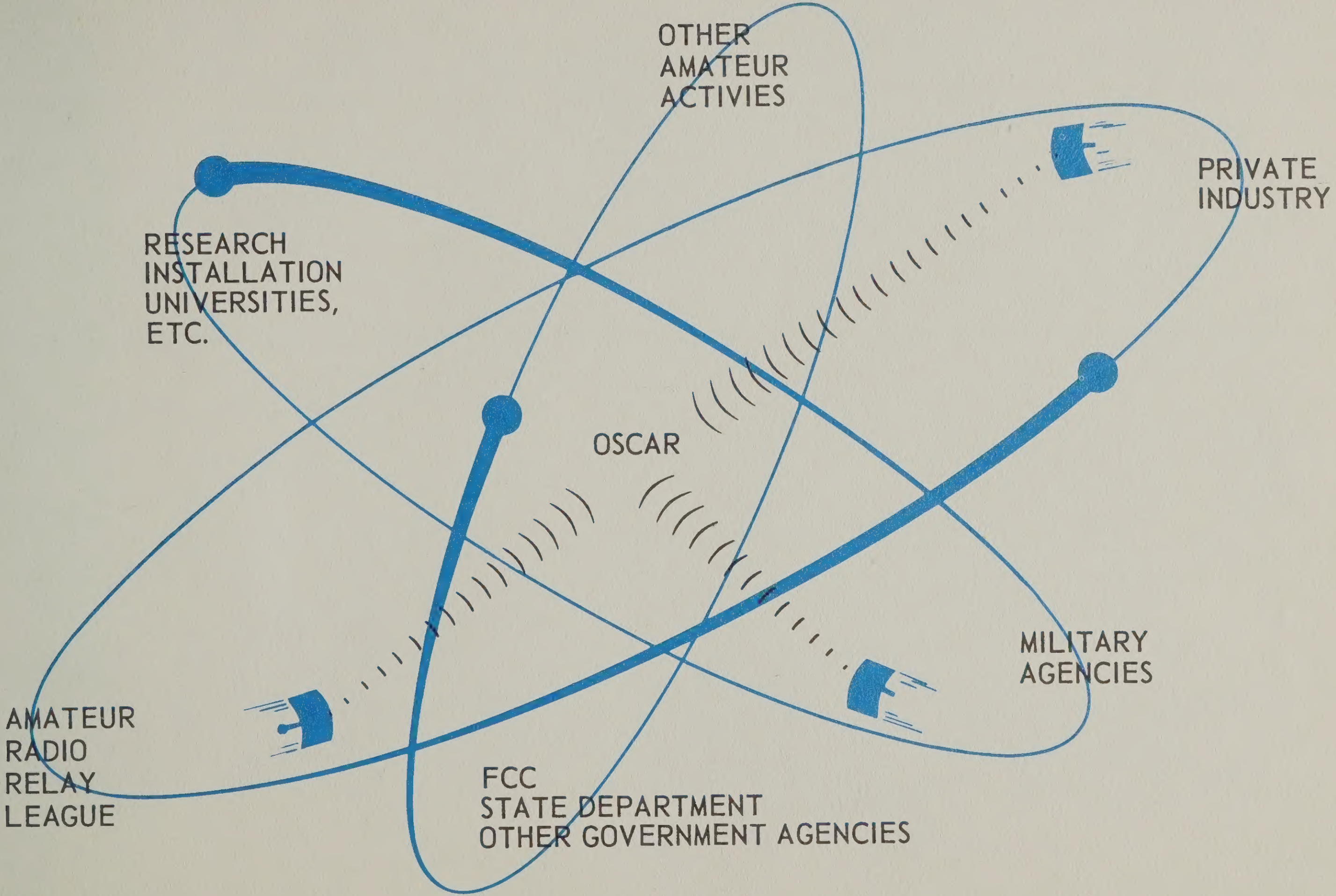
The sum of all these contributions is the world's goodwill to the country which fosters such a far-sighted program and sets the pattern.

In Conclusion

The amateur radio activity about which you have just read is being carried out as a scientific experiment in depth. Such activities reflect the highest traditions of amateur radio. This tradition has consistently added its full measure to our country's technological progress.

Members of the Oscar Association strongly believe that voluntary contributions such as this, however small, are essential to uphold the Nation's scientific advancement

To this end, the members of Oscar are dedicated.


OTHER AMATEUR ACTIVIES
PRIVATE INDUSTRY
RESEARCH INSTALLATION UNIVERSITIES, ETC.
OSCAR
MILITARY AGENCIES
AMATEUR RADIO RELAY LEAGUE
FCC
STATE DEPARTMENT
OTHER GOVERNMENT AGENCIES

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